

transmission of rabies from men to the lower animals, and a great step in the experimental study of hydrophobia.

INJURIES OF THE BRAIN, WITH GENERAL AND WITH LOCAL SYMPTOMS.—E. v. Bergmann, *Volkm. Klin. Vorträge*, No. 190, (abstr. in *Deutsche Med. Wochenschr.*, No. 35, Aug. 27). The author first, in this valuable clinical lecture, directs himself against the former sharp distinction of cerebral shock and cerebral compression. As he has repeatedly stated in former papers, the general symptoms observed in both of these traumatic conditions are referable to a more or less considerable disturbance of nutrition of the whole brain, which, according to the irritability of the various sections of the brain, reveals itself in paralytic or irritative phenomena. The cortex is earliest affected in all cases, the centres situated in the medulla (vaso-motor and vagus centres) are implicated later. Slight concussion causes only a transitory confusion resulting from shock to the nerve elements, or a vaso-motor disturbance of the surface of the brain; a more severe one has, as a consequence, more lasting benumbing of the faculties and retardation of the pulse, with irregularity of the respiration from a more pronounced paralysis of the cortex, and with it irritation of the automatic centres in the medulla. A still severer shock produces quickening, weakening, and smallness of the pulse, together with deep coma in consequence of paralysis of the central organs involved. A compression of the brain from extravasation of blood between it and the dura, when slight, may cause also only a moderate, transient benumbing of the faculties, but when more extensive, causes more lasting unconsciousness, with sopor and slow pulse, and later, coma with small, rapid pulse. The cortical paralysis which asserts itself variously from mere confusion to the most profound coma, is in the first case the result of nutritive disturbances in the nervous elements, accompanied later by vaso-motor disorder or capillary hemorrhages in the cortex; in the second case the coma is the result of anæmia caused by the increasing pressure having a great extension over the cortex, inhibiting and destroying the function of the nerve elements. The same cause affects the automatic organs, first causing irritation and then their paralysis. Any distinction between the phenomena of cerebral shock and cerebral compression is only afforded by the order in time and the duration of the symptoms. In cerebral shock the symptoms are of early occurrence, and, in favorable cases, early in

disappearing. In cerebral compression they increase slowly or rapidly but continuously, and they last longer in favorable cases, even if the extravasation is absorbed. If after injury to the skull the cerebral symptoms are steadily severer, the coma more profound, the respiration stertorous, and the pulse steadily retarded, then increasing pressure is to be diagnosed, caused by an extravasation, and trephining, for the stoppage of the bleeding, is needed. If after rather quick-appearing, transient, severe cerebral symptoms, there is left a dulness with confusion and drowsiness, while the pulse and respiration are normal, then the first symptoms are probably due to a cerebral shock accompanying the traumatic injury to the nervous substance, while the later confusion, etc., are due to an extravasation upon the surface of the brain not large enough to cause serious compression, but yet sufficient to disorder the functions of the sensitive brain. If a large extravasation becomes absorbed, the disturbances of the pulse and respiration disappear first, the mental confusion last. Von Bergmann found in these cases urobilin in the urine (a result of absorbed coloring matter of the blood). Stasis papilla is not necessarily present with an intracranial extravasation. It is often lacking, and may, moreover, occur (according to Berlin) with fracture of the basis cranii (without extravasation), as when the fissure crosses the optic canal and ruptures the nerve-sheath, blood from the former enters the latter. The brain injuries with local symptoms form a natural counterpart to those with general symptoms. They occur when preferably a more or less circumscribed portion of the brain is injured. In that case the special symptoms connected with the injured part are most prominent. But if at the same time the whole brain is also more or less involved, whether as a consequence of shock or through pressure from a rapidly increasing extravasation of blood, then they only will require consideration together with the general phenomena, whether the latter are slight or retrogressive. Localized brain symptoms occur especially prominent with lesions of the motor zone, and appear as definite combined paralytic and irritative phenomena on the opposite half of the body. From these symptoms the locality and extension of the injury in the motor zone can be definitely known, and the case treated accordingly. Broca has given directions for the orientation over the motor region on the skull, and these the author copies. Still another method is given by Lucas Champonniere. Still the author considers both methods, which are given in Lucas Champonniere's monograph on localized trepanation, as not al-

together satisfactory, and the last one is somewhat complicated. (A much simpler method, and one that has been verified by numerous experiments on the cadaver, will be published by the reviewer (M. Schüller) in the *Deutsche Med. Wochenschr.*) Von Bergmann reports one case in which he successfully trephined a funnel-formed depression of the right temporal bone of some 3-4 cm. circumference. He takes the occasion to recommend, after removal of fragments of bone and careful antiseptic cleansing of the wound, the utmost possible cleanliness of the skin-margin of the wound above the trephined place. The cutaneous wound is closed over the opening, through which a drainage tube is laid upon the brain. * * *

The author adds to this case instructive remarks upon the phenomena of cerebral oedema, which occurred in the vicinity of the wound, and with this connects the paralysis of the left arm that appeared some hours after the operation, disappearing again in a few days, to which were added now and then contractions in the muscles supplied by the left facial nerve. From these symptoms Bergmann thinks that the spot of the cortical injury must be sought for in the anterior margin of the anterior central gyrus, where it borders the third frontal.

MENTAL SYMPTOMS FROM ISTHMUS DISEASE.—The conventional notion associates all mental disturbances with perversion of the functions of the cerebral hemispheres. This it would be a truism to speak of as a correct belief, but sufficient stress is not laid by modern writers on the fact that the converse, pathologically speaking, of this proposition is not of universal application, namely, that only hemispheric lesions are found where mental symptoms have been evinced during life. It is an old observation, but it has not been sufficiently commented on, that lesions of the pons, the crura, and thalami, are accompanied by obliteration, more or less complete, of consciousness, blurring of the perceptions, confusion in the intellectual sphere, and this in cases where the lesion was not one of such a character as to disturb neighboring ganglia by pressure. Two explanations may be offered for this phenomenon. Either the vaso-motor centre for the cortical vessels must be assumed to be under the partial control of isthmus ganglia, and hence that isthmus lesions may by irritation or destruction of this centre excite or paralyze the vascular tubes of